ELSEVIER

Author Index

Abrashev, I. R., Genova, V. E., Sotirova, A. V., Ilieva, K. Z.: Purification and partial characterization of neuraminidase from the non-pathogenic *Arthrobacter nicotianae*, 142
Adlercreutz, P: *See* Andersson, M.
Adnadjevic, B: *See* Knezevic, Z.
Ahmad, T: *See* Shemsi, A. M.
Aksu, Z., Bülbül, G.: Investigation of the combined effects of external mass transfer and biodegradation rates on phenol removal using immobilized *P. putida* in packed-bed column reactor, 397
Aleddinoğlu, N. G: *See* Arica, M. Y.
Almeida, M. C., Ruivo, R., Maia, C., Freire, L., Corrêa de Sampaio, T., Barreiros, S.: Novozym 435 activity in compressed gases. Water activity and temperature effects, 494
Altenbuchner, J: *See* Krebsfänger, N.
Andersson, M., Holmberg, H., Adlercreutz, P.: Microbial production of D-(*S*)-chlorolactic acid by *Proteus vulgaris* cells, 170
Andrzej, M., Johannes, C., Hüttermann, A.: Oxidation of polycyclic aromatic hydrocarbons (PAH) by laccase of *Trametes versicolor*, 335
Angela, M: *See* Spagna, G.
Angeli, I. D: *See* Setti, L.
Anisimova, M. V: *See* Tikhonov, V. E.
Aon, M. A: *See* Cortassa, S.
Arcos, J. A., Bernabé, M., Otero, C.: Quantitative enzymatic production of 1,6-diacyl fructofuranoses, 27
Arica, M. Y., Aleaddinoğlu, N. G., Hasirci, V.: Immobilization of glucoamylase onto activated pHEMA/EGDMA microspheres: properties and application to packed-bed reactor, 152
Asbóth, B: *See* Sasvári, Z.
Assis, H. M. S., Bull, A. T., Hardman, D. J.: Synthesis of chiral epihalohydrins using haloalcohol dehalogenase A from *Arthrobacter erithii* H10a, 545
Assis, H. M. S., Sallis, P. J., Bull, A. T., Hardman, D. J.: Biochemical characterization of a haloalcohol dehalogenase from *Arthrobacter erithii* H10a, 568
Athès, V., Combes, D.: Influence of additives on high pressure stability of β-galactosidase from *Kluyveromyces lactis* and invertase from *Saccharomyces cerevisiae*, 532
Augur, C: *See* Hakil, M.
Azmi, W., Sani, R. K., Banerjee, U. C.: Biodegration of triphenylmethane dyes, 185

Bae, K.-S: *See* Kim, Y.-O.
Baker, J: *See* Rhys-Williams, W.
Banerjee, U. C: *See* Azmi, W.
Barbotin, J. N: *See* Decagny, B.
Barclay, M., Hart, A., Knowles, C. J., Meeussen, J. C. L., Tett, V. A.: Biodegradation of metal cyanides by mixed and pure cultures of fungi, 223
Barreiros, S: *See* Almeida, M. C.
Beeftink, H. H: *See* Michielsen, M. J. F.
Béguin, P: *See* Leibovitz, E.
Bell, G: *See* Westgate, S.
Bernabé, M: *See* Arcos, J. A.
Berry, D. R: *See* Harvey, L. M.
Bewtra, J. K: *See* Wu, Y.
Bianchi, G: *See* Spagna, G.
Birol, G., Önsan, Z. I., Kirdar, B., Oliver, S. G.: Ethanol production and fermentation characteristics of recombinant *Saccharomyces cerevisiae* strains grown on starch, 672
Bisswanger, H: *See* Schenk, M.
Biswas, N: *See* Wu, Y.
Bornscheuer, U. T: *See* Krebsfänger, N.
Bourg-Garros, S., Razafindramboa, N., Pavia, A. A.: Optimization of lipase-catalyzed synthesis of (z)-3-hexen-l-yl acetate by direct esterification in hexane and a solvent-free medium, 240
Bourque, D: *See* Tartakovsky, B.
Bracey, E., Stenning, R. A., Brooker, B. E.: Relating the microstructure of enzyme dispersions in organic solvents to kinetic behavior, 147
Breccia, J. D., Siñeriz, F., Baigorí, M. D., Castro, G. R., Hatti-Kaul, R.: Purification and characterization of a thermostable xylanase from *Bacillus amyloliquefaciens*, 42
Brooker, B. E: *See* Bracey, E.
Buc, J., Giordani, R.: A spectrophotometric method for kinetic studies with quinone-dependent oxidoreductases. Application to detection in membranes of nitrate reductase activity with manadione and duroquinone as electron donors, 165
Buitelaar, R. M: *See* Ooijkaas, L. P.
Bülbül, G: *See* Aksu, Z.
Bull, A. T: *See* Assis, H. M. S.
Buswell, J. A: *See* Cai, Y. J.

Cai, Y. J., Buswell, J. A., Chang, S. T.: β-Glucosidase components of the celluloytic system of the edible straw mushroom, *Volvariella volvacea*, 122
Cánovas, M., García-Cases, L., Iborra, J. L.: Limonin consumption at acidic pH values and absence of aeration by *Rhodococcus fascians* cells in batch and immobilized continuous systems, 111
Catalán, J: *See* Montes, F. J.
Chang, H. L: *See* Huang, S. Y.
Chang, S. T: *See* Cai, Y. J.
Chauhan, A. K: *See* Gawande, B. N.
Chen, C: *See* Wang, J.
Chio, S.-H: *See* Wang, S.-L.
Chu, I.-M: *See* Wei, Y.-H.
Combes, D: *See* Athès, V.; Tweddell, R. J.
Corrêa de Sampaio, T: *See* Almeida, M. C.
Cortassa, S., Aon, M. A.: The onset of fermentative metabolism in continuous cultures depends on the catabolite repression properties of *Saccharomyces cerevisiae*, 705
Crespo, J. P. S. G: *See* Lemos, P. C.

Dalton, H: *See* Quintana, M. G.
de Bont, J. A. M: *See* Swaving, J.
de Graaf, L. H: *See* Manzanares, P.
Debeire, P: *See* Zilliox, C.
Decagny, B., Jan, S., Vuillemard, J. C., Sarazin, C., Séguin, J. P., Gosselin, C., Barbotin, J. N., Ergan, F.: Synthesis of wax ester through triolein alcoholysis: Choice of the lipase and study of the mechanism, 578
Denis, S: *See* Hakil, M.
Dickinson, J. R: *See* Edlin, D. A. N.
Dinçer, A. R: *See* Kargi, F.
Doyle, E. M., Noone, A. M., Kelly, C. T., Quigley, T. A., Fogarty, W. M.: Mechanisms of action of the maltogenic α-amylase of *Byssochlamys fulva*, 612
Ducret, A., Trani, M., Lortie, R.: Lipase-catalyzed enantioselective esterification of ibuprofen in organic solvents under controlled water activity, 212

Edlin, D. A. N., Narbad, A., Gasson, M. J., Dickinson, J. R., Lloyd, D.: Purification and characterization of hydrooxycinnamate decarboxylase from *Brettanomyces anomalus*, 232
Eisenthal, R: *See* Ming, F.
Ergan, F: *See* Decagny, B.

Fernández, J: *See* Mohedano, A. F.
Fernandez-Lafuente, R., Rosell, C. M., Guisan, J.M.: Modulation of the properties of penicillin G acylase by acyl donor substrates during N-protection of amino compounds, 583
Fogerty, W. M: *See* Doyle, E. M.
Freire, L: *See* Almeida, M. C.
Furusaki, S: *See* Nakamura, M.

Galán, M. A: *See* Montes, F. J.
García-Cases, L: *See* Cánovas, M.
García-Ochoa, F: *See* Santos, A.
Garde, S: *See* Mohedano, A. F.
Garg, A. P., Roberts, J. C., McCarthy, A. J.: Bleach boosting effect of cellulase-free xylanase of *Streptomyces thermoviolaceus* and its comparison with two commercial enzyme preparations on birchwood kraft pulp, 594
Gasson, M. J: *See* Edlin, D. A. N.
Gawande, B. N., Singh, R. K., Chauhan, A. K., Goel, A., Patkar, A. Y.: Optimization of cyclomaltodextrin glucanotransferase production from *Bacillus firmus*, 288
Gaya, P: *See* Mohedano, A. F.
Genova, V. E: *See* Abrashev, I. R.
Geresh, S: *See* Vyazmensky, M.
Gikas, P., Livingston, A. G.: Use of specific ATP concentration and specific oxygen uptake rate to determine parameters of a structured model of biomass growth, 500
Giordani, R: *See* Buc, J.
Glatz, B. A: *See* Gu, Z.; Rickert, D. A.

Enzyme and Microbial Technology 22:729–732, 1998

© 1998 Elsevier Science Inc. All rights reserved.

655 Avenue of the Americas, New York, NY 10010

0141-0229/98/$19.00
PII S0141-0229(98)00073-8

Glatz, C. E: *See* Gu, Z.; Rickert, D. A.
Gobbetti, M: *See* Smacchi, E.
Goel, A: *See* Gawande, B. N.
Gosselin, C: *See* Decagny, B.
Goto, M: *See* Huang, S. Y.
Greenman, J: *See* Mahmood, A. U.
Groleau, D: *See* Tartakovsky, B.
Gu, D.-X: *See* Zhang, X.-W.
Gu, Z., Glatz, B. A., Glatz, C. E.: Effects of propionic acid on propionibacteria fermentation, 13
Guiot, S. R: *See* Tartakovsky, B.
Guisan, J. M: *See* Fernandez-Lafuente, R.
Gulyaeva, N. D: *See* Tikhonov, V. E.
Gunasekaran, P: *See* Kannan, T. R.
Gunnlaugsdottir, H., Wannerberger, K., Sivik, B.: Alcoholysis and glyceride synthesis with immobilized lipase on controlled-pore glass of varying hydrophobicity in supercritical carbon dioxide, 360

Haensler, M., Jakubke, H.-D.: Endoproteinase Pro-C-catalyzed peptide bond formation in frozen aqueous systems, 617
Hage, J. C: *See* Smits, J. P.
Hakil, M., Denis, S., Viniegra-González, G., Augur, C.: Degradation and product analysis of caffeine and related dimethylxanthines by filamentous fungi, 355
Halling, P. J: *See* Westgate, S.
Han, J. J., Rhee, J. S.: Effect of salt hydrate pairs for water activity control on lipase-catalyzed synthesis of lysophospholipids in a solvent-free system, 158
Hanlon, G. W: *See* Rhys-Williams, W.
Hardman, D. J: *See* Assis, H. M. S.
Hart, A: *See* Barclay, M.
Harvey, L. M., McNeil, B., Berry, D. R., White, S.: Autolysis in batch cultures of *Penicillium chryogenum* at varying agitation rates, 446
Hasirci, V: *See* Arica, M. Y.
Hassan, M.-C. A: *See* Ramsay, J. A.
Holmberg, H: *See* Andersson, M.
Horikoshi, K: *See* Yoshida, M.
Huang, S. Y., Chang, H. L., Goto, M.: Preparation of surfactant-coated lipase for the esterification of geraniol and acetic acid in organic solvents, 552
Hubble, J: *See* Ming, F.
Hung, Y.-F: *See* Rhys-Williams, W.
Hütterman, A: *See* Andrzej, M.

Iborra, J. L: *See* Cánovas, M.
Ilyina, A. V: *See* Tikhonov, V. E.

Jakubke, H.-D: *See* Haensler, M.
Jan, S: *See* Decagny, B.
Jeong, K. J., Lee, P. C., Park, I. Y., Kim, M. S., Kim, S. C.: Molecular cloning and characterization of an endoxylanase gene of *Bacillus* sp. in *Escherichia coli*, 599
Joenne, T: *See* Lebeau, T.
Johannes, C: *See* Andrzej, M.
Jovetic, S., Tramper, J., Marinelli, F.: Biotransformation of the lipoglycopeptide antibiotic A40926 with immobilized cells of *Actinoplanes teichomyceticus*—in situ supply of nutrients, 117
Jung, H.-C., Park, J.-H., Park, S.-H., Lebeault, J.-M., Pan, J.-G.: Expression of carboxymethylcellulase on the surface of *Escherichia coli* using *Pseudomonas syringae* ice nucleation protein, 348
Junter, G.-A: *See* Lebeau, T.

Kakuzaki, M: *See* Sugiura, T.
Kanerva, L. T: *See* Lundell, K.
Kannan, T. R., Sangiliyandi, G., Gunasekaran, P.: Improved ethanol production from sucrose by a mutant of *Zymomonas mobilis* lacking sucrases in immobilized cell fermentation, 179
Kargi, F., Dinçer, A. R.: Saline wastewater treatment by halophile-supplemented activated sludge culture in an aerated rotating biodisc contactor, 427
Kaynak, A: *See* Smits, J. P.
Kelly, C. T: *See* Doyle, E. M.
Kermasha, S: *See* Tweddell, R. J.
Kim, H.-K: *See* Kim, Y.-O.
Kim, M. S: *See* Jeong, K. J.
Kim, S. C: *See* Jeong, K. J.
Kim, T.-K: *See* Park, D.-C.
Kim, Y.-O., Kim, H.-K., Bae, K.-S., Yu, J.-H., Oh, T.-K: Purification and properties of a thermostable phytase from *Bacillus* sp. DS11, 2
Kirdar, B: *See* Birol, G.
Kitaoka, M., Robyt, J. F.: Use of a microtiter plate screening method for obtaining *Leuconostoc mesenteroids* mutants constitutive for glucansucrase, 527
Knezevic, Z., Mojovic, L., Adnadjevic, B.: Palm oil hydrolysis by lipase from *Candida cylindracea* immobilized on zeolite type Y, 275
Knol, W: *See* Smits, J. P.
Knowles, C. J: *See* Barclay, M.
Kollmer, A: *See* Schmid, A.
Kotzekidou, P: *See* Roukas, T.
Krebsfänger, N., Zocher, F., Altenbuchner, J., Bornscheuer, U. T.: Characterization and enantioselectivity of a recombinant esterase from *Pseudomonas fluorescens*, 641

Ladero, M: *See* Santos, A.
Lauritsen, F. R., Lunding, A.: A study of the bioconversion potential of the fungus *Bjerkandera adusta* with respect to a production of chlorinated aromatic compounds, 459
Le Traon-Masson, M.-P., Pellerin, P.: Purification and characterization of two β-D-glucosidases from an *Aspergillus niger* enzyme preparation: affinity and specificity toward glucosylated compounds characteristic of the processing of fruits, 374
Leak, D. J: *See* Prichanont, S.
Lebeau, T., Jouenne, T., Junter, G.-A.: Diffusion of sugars and alcohols through composite membrane structures immobilizing viable yeast cells, 434
Lebeault, J.-M: *See* Jung, H.-C.
Lee, P., Swaisgood, H. E.: Cloning and expression of a streptavidin-lipase fusion gene in *Escherichia coli* and characterization of the immobilized fusion protein, 246
Lee, P. C: *See* Jeong, K. J.
Lee, Y.-H: *See* Park, D.-C.
Leibovitz, E., Béguin, P.: Comparison of two scaffolding polypeptides for the integration of different proteins in synthetic complexes derived from the *Clostridium thermocellum* cellulosome, 588
Lemos, P. C., Viana, C., Salgueiro, E. N., Ramos, A. M., Crespo, J. P. S. G., Reis, M. A. M.: Effect of carbon source on the formation of polyhydroxyalkanoates (PHA) by a phosphate-accumulating mixed culture, 662
Li, B: *See* Wang, J.
Lilly, M. D: *See* Mitra, R. K.
Liu, B.-L., Radiq, A., Tzeng, Y.-M., Rob, A.: The induction and characterization of phytase and beyond, 415
Liu, X: *See* Zhang, X.-W.
Livingston, A. G: *See* Gikas, P.
Lloyd, D: *See* Edlin, D. A. N.
Lortie, R: *See* Ducret, A.
Lundell, K., Raijola, T., Kanerva, L. T.: Enantioselectivity of *Pseudomonas cepacia* and *Candida rugosa* lipases for the resolution of secondary alcohols: The effects of *Candida rugosa* isoenzymes, 86
Lunding, A: *See* Lauritsen, F. R.
Luonteri, E., Tenkanen, M., Viikari, L.: Substrate specificities of *Penicillium simplicissimum* α-galactosidases, 192

Mahmood, A. U., Greenman, J., Scragg, A. H.: Orange and potato peel extracts: Analysis and use as *Bacillus* substrates for the production of extracellular enzymes in continuous culture, 130
Maia, C: *See* Almeida, M. C.
Malcata, F. X: *See* Sousa, M. J.
Manzanares, P., de Graaf, L. H., Visser, J.: Characterization of galactosidases from *Aspergillus niger*: purification of a novel α-galactosidase activity, 383
Marinelli, F: *See* Jovetic, S.
Martínez, A., Ramírez, O. T., Valle, F.: Effect of growth rate on the production of β-galactosidase from *Escherichia coli* in *Bacillus subtilis* using glucose-limited exponentially fedbatch cultures, 520
Marty, A: *See* Tweddell, R. J.
McCarthy, A. J: *See* Garg, A. P.
McCarthy, F: *See* Rhys-Williams, W.
McNeil, B: *See* Harvey, L. M.
Medina, M: *See* Mohedano, A. F.
Meijer, E. A: *See* Michielsen, M. J. F.
Meussen, J. C. L: *See* Barclay, M.
Michielsen, M. J. F., Meijer, E. A., Wijffels, R. H., Tramper, J., Beeftink, H. H.: Kinetics of D-malate production by permeabilized *Pseudomonas pseudoalcaligenes*, 621
Ming, F., Whish, W. J. D., Hubble, J., Eisenthal, R.: Estimation of parameters for cell-surface interactions: Maximum binding force and detachment constant, 94
Miquez, C. B: *See* Tartakovsky, B.
Mitra, R. K., Woodley, J. M., Lilly, M. D.: *Escherichia coli* transketolase-catalyzed carbon-carbon bond formation: biotransformation characterization for reactor evaluation and selection, 64
Mohedano, A. F., Fernández, J., Garde, S., Medina, M., Gaya, P., Nuñez, M.: The effect of the cysteine proteinase from *Micrococcus* sp. INIA 528 on the ripening process of Manchego cheese, 391
Mojovic, L: *See* Knezevic, Z.
Montes, F. J., Catalán, J., Galán, M. A.: A metabolic model describing growth and substrate uptake of *Trigonopsis variabilis*, 329
Morgan, K. R: *See* Stevenson, D. E.
Mutlu, M: *See* Turhan, M.

Nakamura, M., Seki, M., Furusaki, S.: Enhanced anthocyanin methylation by growth limitation in strawberry suspension culture, 404
Nakamura, N: *See* Yoshida, M.
Narbad, A: *See* Edlin, D. A. N.
Noone, A. M: *See* Doyle, E. M.
Nuñez, M: *See* Mohedano, A. F.

Ofman, D. J: *See* Stevenson, D. E.
Ogasawara, N: *See* Tsugawa, W.
Oh, T.-K: *See* Kim, Y.-O.
Oliver, S. G: *See* Birol, G.
Önsan, Z. İ: *See* Birol, G.
Ooijkaas, L. P., Tramper, J., Buitelaar, R. M.: Biomass estimation of *Coniothrium minitans* in solid- state fermentation, 480
Otero, C: *See* Arcos, J. A.

Pan, J.-G: *See* Jung, H.-C.
Park, D.-C., Kim, T.-K., Lee, Y.-H.: Characteristics of transglycosylation reaction of cyclodextrin glucanotransferase in the heterogeneous enzyme reaction system using extrusion starch as glucosyl donor, 217
Park, I. Y: *See* Jeong, K. J.
Park, J.-H: *See* Jung, H.-C.
Park, S.-H: *See* Jung, H.-C.
Parr, R. S.: Patent reports, 78, 138, 538, 652
Patkar, A. Y: *See* Gawande, B. N.
Pavia, A. A: *See* Bourg-Garros, S.
Pellerin, P: *See* Le Traon-Masson, M.-P.
Petti, L: *See* Tartakovsky, B.
Pialis, P., Saville, B. A.: Production of L-DOPA from tyrosinase immobilized on nylon 6,6: Enzyme stability and scaleup, 261
Pifferi, P. G: *See* Setti, L.; Spagna, G.
Pocalyko, D. J., Tallman, M.: Effects of amphipaths on the activity and stability of *Fusarium solani pisi* cutinase, 647
Prichanont, S., Leak, D. J., Stuckey, D. C.: Alkene monooxygenase-catalyzed whole cell epoxidation in a two-liquid phase system, 471

Quigley, T. A: *See* Doyle, E. M.
Quintana, M. G., Dalton, H.: Production of toluene *cis*-diol by immobilized *Pseudomonas putida* UV4 cells in barium alginate beads, 713

Radigina, L. A: *See* Tikhonov, V. E.
Radiq, A: *See* Liu, B.-L.
Raijola, T: *See* Lundell, K.
Ramírez, O. T.
See Martínez, A., 520
Ramos, A. M: *See* Lemos, P. C.
Ramsay, B. A: *See* Ramsay, J. A.
Ramsay, J. A., Hassan, M.-C. A., Ramsay, B. A.: Biological conversion of hemicellulose to propionic acid, 292
Rashid, M. H: *See* Shemsi, A. M.
Razafindramboa, N: *See* Bourg-Garros, S.
Reis, M. A. M: *See* Lemos, P. C.
Rhee, J. S: *See* Han, J. J.
Rhys-Williams, W., McCarthy, F., Baker, J., Hung, Y.-F., Thomason, M. J., Lloyd, A. W., Hanlon, G. W.: A mechanistic investigation into the microbial chiral inversion of 2- arylpropionic acids using deuterated derivatives of 2-phenylpropionic acid, 281
Rickert, D. A., Glatz, C. E., Glatz, B. A.: Improved organic acid production by calcium alginate-immobilized propionibacteria, 409
Rijhwani, S. K., Shanks, J. V.: Effect of subculture cycle on growth and indole alkaloid production by *Catharanthus roseus* hairy root cultures, 606
Rinzema, A: *See* Smits, J. P.
Rob, A: *See* Liu, B.-L.
Roberts, J. C: *See* Garg, A. P.
Robyt, J. F: *See* Kitaoka, M.
Romagnoli, D: *See* Spagna, G.
Rosell, C. M: *See* Fernandez-Lafuente, R.
Roukas, T., Kotzekidou, P.: Lactic acid production from deproteinized whey by mixed cultures of free and coimmobilized *Lactobacillus casei* and *Lactococcus lactis* cells using fedbatch culture, 199
Ruivo, R: *See* Almeida, M. C.

Salgueiro, E. N: *See* Lemos, P. C.
Sallis, P. J: *See* Assis, H. M. S.
Sangiliyandi, G: *See* Kannan, T. R.
Sani, R. K: *See* Azmi, W.
Santos, A., Ladero, M., García-Ochoa, F.: Kinetic modeling of lactose hydrolysis by a β-galactosidase from *Kluyveromices fragilis*, 558
Sarazin, C: *See* Decagny, B.
Sasvári, Z., Asbóth, B.: Formation of disulfide-bridged dimers during thermoinactivation of glucoamylase from *Aspergillus niger*, 466
Saville, B. A: *See* Pialis, P.
Scali, S: *See* Setti, L.
Schenk, M., Bisswanger, H.: A microplate assay for D-xylose/D-glucose isomerase, 721
Schmid, A., Kollmer, A., Witholt, B.: Effects of biosurfactant and emulsification on two-liquid phase *Pseudomonas olevorans* cultures and cell-free emulsions containing *n*-decane, 487
Schokker, E. P., van Wagenberg, A. C. M., van Boekel, M. A. J. S.: A note on the use of urea in studying the mechanism of thermal inactivation of extracellular proteinase from *Pseudomonas fluorescens* 22F, 695
Scragg, A. H: *See* Mahmood, A. U.
Séguin, J. P: *See* Decagny, B.
Seki, M: *See* Nakamura, M.
Setti, L., Scali, S., Angeli, I. D., Pifferi, P. G.: Horseradish peroxidase-catalyzed oxidative coupling of 3-methyl 2-benzothiazolinone hydrazone and methoxyphenols, 656
Shanks, J. V: *See* Rijhwani, S. K.
Shemsi, A. M., Ahmad T., Rashid, M. H., Siddiqui, K. S.: Automation of compartmental electrophoresis apparatus for the separation of non-covalently attached polysaccharides from proteins, 76
Siddiqui, K. S: *See* Shemsi, A. M.
Singh, R. K: *See* Gawande, B. N.
Sivik, B: *See* Gunnlaugsdottir, H.
Smacchi, E., Gobbetti, M.: Peptides from several Italian cheeses inhibitory to proteolytic enzymes of lactic acid bacteria, *Pseudomonas fluorescens* ATCC 948 and to the angiotensin I-converting enzyme, 687
Smits, J. P., Rinzema, A., Tramper, J., van Sonsbeek, H. M., Hage, J. C., Kaynak, A., Knol, W.: The influence of temperature on kinetics in solid-state fermentation, 50
Sode, K: *See* Tsugawa, W.
Sotirova, A. V: *See* Abrashev, I. R.
Sousa, M. J., Malcata, F. X.: Proteolysis of ovine and caprine caseins in solution by enzymatic extracts from flowers of *Cynara cardunculus*, 305
Spagna, G., Romagnoli, D., Angela, M., Bianchi, G., Pifferi, P. G.: A simple method for purifying glycosidases: α-L-arabinofuranosidase and β-D-glucopyranosidase from *Aspergillus niger* to increase the aroma of wine. Part I., 298
Stanley, R. A: *See* Stevenson, D. E.
Stenning, R. A: *See* Bracey, E.
Stevenson, D. E., Ofman, D. J., Morgan, K. R., Stanley, R. A.: Protease-catalyzed condensation of peptides as a potential means to reduce the bitter taste of hydrophobic peptides found in protein hydrolysates, 100
Stuckey, D. C: *See* Prichanont, S.
Sugiura, T., Kakuzaki, M.: Dynamics of recombinant protein production by mammalian cells in immobilized perfusion culture, 699
Sun, T: *See* Zhang, X.-W.
Sun, Z.-Y: *See* Zhang, X.-W.
Swaisgood, H. E: *See* Lee, P.
Swaving, J., de Bont J. A. M.: Microbial transformation of epoxides, 19

Tallman, M: *See* Pocalyko, D. J.
Tartakovsky, B., Miquez, C. B., Petti, L., Bourque, D., Groleau, D., Guiot, S. R.: Tetrachloroethylene dechlorination using a consortium of coimmobilized methanogenic and methanotrophic bacteria, 255
Tatarinova, N. Y: *See* Tikhonov, V. E.
Taylor, K. E: *See* Wu, Y.
Tenkanen, M: *See* Luonteri, E.
Tett, V. A: *See* Barclay, M.
Thomason, M. J: *See* Rhys-Williams, W.
Tikhonov, V. E., Radigina, L. A., Yamskov, I. A., Gulyaeva, N. D., Ilyina, A. V., Anisimova, M. V., Varlamov, V. P., Tatarinova, N. Y.: Affinity purification of major chitinases produced by *Streptomyces kurssanovii*, 82
Tinoco, R., Vazquez-Duhalt, R.: Chemical modification of cytochrome C improves their catalytic properties in oxidation of polycyclic aromatic hydrocarbons, 8
Tonkova, A.: Bacterial cyclodextrin glucanotransferase, 678
Tramper, J: *See* Jovetic, S.; Michielsen, M. J. F.; Ooijkaas, L. P.; Smits, J. P.
Trani, M: *See* Ducret, A.
Tsugawa, W., Ogasawara, N., Sode, K.: Fluorescent measurement of 1,5-anhydro-D-glucitol based on a novel marine bacterial glucose dehydrogenase, 269
Turhan, M., Mutlu, M.: Kinetics of κ- casein/immobilized chymosin hydrolysis, 342
Tweddell, R. J., Kermasha, S., Combes, D., Marty, A.: Esterification and interesterification activities of lipases from *Rhizopus niveus* and *Mucor miehei* in three different types of organic media: a comparative study, 439
Tzeng, Y.-M: *See* Liu, B.-L.

Vaidya, A. M: *See* Westgate, S.
Valle, F.
See Martínez, A., 520
van Boekel, M. A. J. S: *See* Schokker, E. P.

van Sonsbeek, H. M: *See* Smits, J. P.
van Wagenberg, A. C. M: *See* Schokker, E. P.
Varlamov, V. P: *See* Tikhonov, V. E.
Vazquez-Duhalt, R: *See* Tinoco, R.
Viana, C: *See* Lemos, P. C.
Viikari, L: *See* Luonteri, E.
Viniegra-González, G: *See* Hakil, M.
Visser, J: *See* Manzanares, P.
Vuillemard, J. C: *See* Decagny, B.
Vyazmensky, M., Geresh, S.: Substrate specificity and product stereochemistry in the dehalogenation of 2- haloacids with the crude enzyme preparation from *Pseudomonas putida*, 323

Wang, J., Chen, C., Li, B., Zhang, J., Yu, Y.: Production of hydrocortisone from cortexlone-21-acetate by immobilized *Absidia orchidis* in cosolvent-containing media, 368
Wang, R., Cai, Q., Tong, D., Nie, L., Yao, S.: Enzymatic assay of acid phosphatase and microanalysis of Cu^{2+} and Ag^{+} with a SAW-impedance sensor, 36
Wang, S.-L., Chio, S.-H.: Deproteinization of shrimp and crab shell with the protease of *Pseudomonas aeruginosa* K-187, 629
Wang, S.-L., Chio, S.-H.: Reversible immobilization of chitinase via coupling to reversibility soluble polymer, 634
Wannerberger, K: *See* Gunnlaugsdottir, H.
Wei, Y.-H., Chu I.-M.: Enhancement of surfactin production in iron-enriched media by *Bacillus subtilis* ATCC 21332, 724
Westgate, S., Vaidya, A. M., Bell, G., Halling, P. J.: High specific activity of whole cells in an aqueous-organic two-phase membrane bioreactor, 575
Whish, W. J. D: *See* Ming, F.
White, S: *See* Harvey, L. M.
Wijffels, R. H: *See* Michielsen, M. J. F.
Witholt, B: *See* Schmid, A.
Woodley, J. M: *See* Mitra, R. K.
Wu, Y., Taylor, K. E., Biswas, N., Bewtra, J. K.: A model for the protective effect of additives on the activity of horseradish peroxidase in the removal of phenol, 315

Yamskov, I. A: *See* Tikhonov, V. E.
Yoshida, M., Nakamura, N., Horikoshi, K.: Production of trehalose by a dual enzyme system of immobilized maltose phosphorylase and trehalose phosphorylase, 71
Yu, J.-H: *See* Kim, Y.-O.
Yu, Y: *See* Wang, J.

Zhang, J: *See* Wang, J.
Zhang, X.-W., Sun, T., Sun, Z.-Y., Liu, X., Gu, D.-X.: Time- dependent kinetic models for glutamic acid fermentation, 205
Zilliox, C., Debeire, P.: Hydrolysis of wheat straw by a thermostable endoxylanase: Adsorption and kinetic studies, 58
Zocher, F: *See* Krebsfänger, N.

ELSEVIER

Subject Index

A40926
Antibiotic, Biotransformation, Immobilized mycelium, Deacylation, Coimmobilization, 117
Absidia orchidis
11 β-Hydroxylation, Cell immobilization, Hydrocortisone production, Cosolvent, 368
Accelerated ripening
Cysteine proteinase, *Micrococcus*, Manchego cheese, 391
ACE
Inhibitory peptides, Cheese, Lactic acid bacteria peptidases, *Pseudomonas fluorescens*, 687
Acetic acid
Surfactant-coated lipase, Lipolytic esterification, Geraniol, Esterification yield, 552
Acid phosphatase
Surface acoustic wave, Impedance sensor, Adenosine-5′-monophosphate, Inhibition, 36
Acidolysis
Immobilized lipase, Butter, Hollow-fiber reactor, Free fatty acids, Randomization, 511
Actinomycetes
Biodegradation, Decolorization, Triphenylmethane dyes, Bacteria, Yeast, Fungi, 185
Activated sludge
Polyhydroxyalkanoates, Polymer characterization, Biological phosphorus removal, Carbon source, 662
Activity
Novozym, *Candida antarctica* B, Lipase, Supercritical fluids, 494
Additives
β-Galactosidase, Invertase, High pressure, Denaturation, Stabilization, 532
Horseradish peroxidase, Enzymatic phenol removal, 315
Adenosine-5′-monophosphate
Surface acoustic wave, Impedance sensor, Acid phosphatase, Inhibition, 36
Affinity chromatography
Chitin, Chitinase, Cross-linking process, Sorbent, Isolation, 82
Agar
Alcoholic fermentation, Diffusion, Immobilized cells, Microporous membrane, 434
Ajmalicine
Growth rate, Tabersonine, Lochnericine, Serpentine, 606
Alcoholic fermentation
Agar, Diffusion, Immobilized cells, Microporous membrane, 434
Alcoholysis
Glyceride synthesis, Immobilization, Lipase, Hydrophobic support, Intermediately hydrophobic support, Supercritical carbon dioxide, 360
Lipase, *Pseudomonas cepacia*, *Candida rugosa*, Isoenzymes, Enantioselectivity, Hydrolysis, Resolution, 86
Lipase, Screening, Triacylglycerols, Wax ester, Stearyl oleate, Isomerization, 578
Alkanes
Mass transfer limitation, *Pseudomonas oleovorans*, Two-liquid phase culture, Emulsification, Interfacial area, Surfactant, 487
Alternan
Enzyme, Screening, Microtiter plate, Constitutive mutant, *Leuconostoc mesenteroides*, Glucansucrase, Dextransucrase, Alternansucrase, Dextran, 527
Alternansucrase
Enzyme, Screening, Microtiter plate, Constitutive mutant, *Leuconostoc mesenteroides*, Glucansucrase, Dextransucrase, Dextran, Alternan, 527
Amphipaths
Cutinase, Kinetics, Stability, 647
Amphiphiles
Lipases, *Candida antarctica* lipase, Emulsifiers, Food additives, Fructose, Sugar, 27
α-Amylase
Maltogenic α-amylase, Mechanisms of action, 612
Recombinant yeast, Starch, Fermentation, Glucoamylase, 672
1,5-Anhydro-D-glucitol
Diabetes, Glucose dehydrogenase, Marine bacteria, 269
Anthocyanase
β-D-Glucosidase, *Aspergillus niger*, Purification, Color, Aroma, Cellulolysis, 374
Anthocyanin
Methylation, Strawberry, Growth limitation, Peonidin-3-glucoside, 404
Antibiotic
Biotransformation, Immobilized mycelium, Deacylation, A40926, Coimmobilization, 117
aprE gene
Bacillus subtilis, Exponentially fedbatch culture, β-Galactosidase, 520
α-L-Arabinofuranosidase
β-D-Glucopyranosidase, Enzyme purification, Wine aromatization, 298
Aroma
β-D-Glucosidase, Anthocyanase, *Aspergillus niger*, Purification, Color, Cellulolysis, 374
Arthrobacter erithii H10a
Haloalcohol dehalogenase, Halohydrin hydrogen halide lyase, Enzyme purification, 568
Optically active epihalohydrins, Enantioselective dehalogenation, Enantioselective halogenation, Haloalcohol dehalogenase, 545
Arthrobacter nicotianae
Neuraminidase, Glucomacropeptide, 142
Artificial electron mediator
Proteus vulgaris, D-(S)-Chlorolactic acid, Mediator regeneration, 170
2-Arylpropionic acid
Microbial chiral inversion, 2-Phenylpropionic acid, Ibuprofen, Deuterium isotope effect, Metabolism, 281
Aspergillus niger
α-Galactosidase, β-Galactosidase, Purification, 383
β-D-Glucosidase, Anthocyanase, Purification, Color, Aroma, Cellulolysis, 374
ATP
Biomass quality, Biomass activity, Oxygen uptake rate, Structured model, 500
Autolysis
Impeller speed, *Penicillin chrysogenum*, Image analysis, Proteases, β 1-3 Glucanases, 446
Automation
Compartmental electrophoresis, Electronic circuitry, Polysaccharides, Proteins, 76

Bacilli
Cyclodextrin glucanotransferase, Immobilized cells, Immobilized enzyme, Structure, Cyclodextrin, 678
Bacillus amyloliquefaciens xylanase
Cellulase-free, Xylan, Hydrophobic interaction chromatography, Stability, Composition, 42
Bacillus enzymes
Orange peel substrates, Potato peel substrates, 130
Bacillus firmus
Cyclomaltodextrin glucanotransferase, Factorial design, Media optimization, 288
Bacillus sp.
Endoxylanase, *Escherichia coli*, Xylobiose, 599
Phytase, Phytate, Thermostable enzyme, 2
Bacillus subtilis
Biosurfactant, Surfactin, Iron, 724
Exponentially fedbatch culture, *aprE* gene, β-Galactosidase, 520
Membrane bioreactor, Stereoselective hydrolysis, Menthyl acetate, 575
Bacteria
Biodegradation, Decolorization, Triphenylmethane dyes, Actinomycetes, Yeast, Fungi, 185
Barium alginate beads
Toluene *cis*-diol, Immobilization, Bioreactors, *Pseudomonas putida* UV4, 713
Binding force
Cell adhesion, Surface interactions, 94
Biocatalysis
Chemical modification, Cytochrome, Enzyme, Oxidation, Polycyclic aromatic hydrocarbons, 8

Enzyme and Microbial Technology 22:733–741, 1998

© 1998 Elsevier Science Inc. All rights reserved.

655 Avenue of the Americas, New York, NY 10010

0141-0229/98/$19.00
PII S0141-0229(98)00074-X

Bioconversion
Bjerkandera adusta, Halogenated metabolites, Ligninolytic fungi, Membrane inlet mass spectrometry, 459
Volvariella volvacea, β-Glucosidase, Cellulases, Edible mushroom, 122
Biodegradation
Bioremediation, Fungi, *Fusarium solani*, Metal cyanides, Hexacyanoferrate, 223
Decolorization, Triphenylmethane dyes, Bacteria, Actinomycetes, Yeast, Fungi, 185
Biological phosphorus removal
Polyhydroxyalkanoates, Polymer characterization, Activated sludge, Carbon source, 662
Biomass activity
Biomass quality, ATP, Oxygen uptake rate, Structured model, 500
Biomass estimation
Solid-state fermentation, Fungi, Growth, Conidiation, Methods, 480
Biomass quality
Biomass activity, ATP, Oxygen uptake rate, Structured model, 500
Bioreactors
Toluene *cis*-diol, Barium alginate beads, Immobilization, *Pseudomonas putida* UV4, 713
Bioremediation
Biodegradation, Fungi, *Fusarium solani*, Metal cyanides, Hexacyanoferrate, 223
Biosurfactant
Surfactin, Iron, *Bacillus subtilis*, 724
Biotransformation
Antibiotic, Immobilized mycelium, Deacylation, A40926, Coimmobilization, 117
Chiral epoxide, Two-phase system, 471
Epoxides, Enantioselective degradation, Epoxide hydrolase, Glutathione transferase, Styrene oxide isomerase, *Xanthobacter* Py2, 19
Transketolase, Reactor design, *Escherichia coli*, 64
Biphasic system
Rhizopus niveus, *Mucor miehei*, Lipase, Esterification, Interesterification, Organic solvent, 439
Bitterness reduction
Protease, Protein hydrosylate, Peptide, Condensation, 100
Bjerkandera adusta
Bioconversion, Halogenated metabolites, Ligninolytic fungi, Membrane inlet mass spectrometry, 459
Bleach boosting effect
Streptomyces thermoviolaceus, Xylanses, Paper properties, Pulp treatment, 594
Brettanomyces anomalus
Hydroxycinnamate decarboxylase, Ferulic acid, Caffeic acid, *p*-Couramic acid, Flavor compounds, 232
Butter
Immobilized lipase, Acidolysis, Hollow-fiber reactor, Free fatty acids, Randomization, 511

Ca-alginate gel-immobilized *P. putida*
Phenol biodegradation, Packed-bed column reactor, First- order biodegradation kinetics, External film diffusion, Mass transfer coefficient, 397
Caffeic acid
Hydroxycinnamate decarboxylase, Ferulic acid, *p*-Couramic acid, *Brettanomyces anomalus*, Flavor compounds, 232
Caffeine
Theophylline, Theobromine, Paraxanthine, Degradation, Filamentous fungi, 355
Calcium alginate
Propionibacteria, Propionic acid, Fermentation, Cell immobilization, 409
Candida antarctica
Enzymes, Solvent, Water activity, Resolution, Enantioselectivity, Lipase, Ibuprofen, 212
Candida antarctica B
Novozym, Lipase, Activity, Supercritical fluids, 494
Candida antarctica lipase
Lipases, Amphiphiles, Emulsifiers, Food additives, Fructose, Sugar, 27
Candida cylindracea lipase
Zeolite, Immobilization, Hydrolysis, Palm oil, Kinetic model, 275
Candida rugosa
Lipase, *Pseudomonas cepacia*, Isoenzymes, Enantioselectivity, Hydrolysis, Alcoholysis, Resolution, 86
Carbon source
Polyhydroxyalkanoates, Polymer characterization, Biological phosphorus removal, Activated sludge, 662
Carboxymethylcellulase
Surface anchoring, Ice-nucleation protein, *Pseudomonas syringae*, 348
k-Casein
Hydrolysis, Chymosin, Immobilization, 342
Catabolic repression mutants
Chemostat cultures, Fermentation, Saccharomyces cerevisiae, 705
Cell adhesion
Surface interactions, Binding force, 94
Cell immobilization
11 β-Hydroxylation, *Absidia orchidis*, Hydrocortisone production, Cosolvent, 368
Propionibacteria, Propionic acid, Fermentation, Calcium alginate, 409
Propionic acid, Propionibacteria, Fermentation, Product inhibition, Kinetics, 13
Cell metabolism
Recombinant protein production, Perfusion culture, Opticell, PCGFX, 699
Cellulase-free
Bacillus amyloliquefaciens xylanase, Xylan, Hydrophobic interaction chromatography, Stability, Composition, 42
Cellulases
Cellulosome, Dockerin domain, Cohesin domain, *Clostridium thermocellum*, Protein complexes, 588
Volvariella volvacea, β-Glucosidase, Edible mushroom, Bioconversion, 122
Cellulolysis
β-D-Glucosidase, Anthocyanase, *Aspergillus niger*, Purification, Color, Aroma, 374
Cellulosome
Cellulases, Dockerin domain, Cohesin domain, *Clostridium thermocellum*, Protein complexes, 588
Cheese
Inhibitory peptides, Lactic acid bacteria peptidases, ACE, *Pseudomonas fluorescens*, 687
Cheese ripening
Plant rennet, Proteases, Enzyme specificity, 305
Chemical modification
Biocatalysis, Cytochrome, Enzyme, Oxidation, Polycyclic aromatic hydrocarbons, 8
Chemostat cultures
Catabolic repression mutants, Fermentation, Saccharomyces cerevisiae, 705
Chiral epoxide
Biotransformation, Two-phase system, 471
Chitin
Chitinase, Cross-linking process, Sorbent, Affinity chromatography, Isolation, 82
Shrimp shell, Deproteinization, Protease, *Pseudomonas aeruginosa*, *Pseudomonas maltophila*, 629
Chitinase
Chitin, Cross-linking process, Sorbent, Affinity chromatography, Isolation, 82
Shrimp and crab shell waste, *Pseudomonas aeruginosa*, Reversibly soluble polymers, Immobilized enzyme, 634
Chymosin
k-Casein, Hydrolysis, Immobilization, 342
Cloning
Streptavidin-lipase fusion gene, Fusion protein, *Escherichia coli*, Transesterification, 246
Cohesin domain
Cellulosome, Cellulases, Dockerin domain, *Clostridium thermocellum*, Protein complexes, 588
Coimmobilization
Antibiotic, Biotransformation, Immobilized mycelium, Deacylation, A40926, 117
Methanotrophs, Methanogens, Tetrachloroethylene, Microbial consortium, 255
Color
β-D-Glucosidase, Anthocyanase, *Aspergillus niger*, Purification, Aroma, Cellulolysis, 374
Compartmental electrophoresis
Automation, Electronic circuitry, Polysaccharides, Proteins, 76
Composition
Bacillus amyloliquefaciens xylanase, Cellulase-free, Xylan, Hydrophobic interaction chromatography, Stability, 42
Condensation
Protease, Bitterness reduction, Protein hydrosylate, Peptide, 100
Conidiation
Biomass estimation, Solid-state fermentation, Fungi, Growth, Methods, 480
Constitutive mutant
Enzyme, Screening, Microtiter plate, *Leuconostoc mesenteroides*, Glucansucrase, Dextransucrase, Alternansucrase, Dextran, Alternan, 527
Continuous reactor
Limonin, *Rhodococcus fascians*, Immobilized cells, 111
Cosolvent
11 β-Hydroxylation, Cell immobilization, *Absidia orchidis*, Hydrocortisone production, 368
p-Couramic acid
Hydroxycinnamate decarboxylase, Ferulic acid, Caffeic acid, *Brettanomyces anomalus*, Flavor compounds, 232

Covalent bonding
pHEMA/EGDMA microspheres, Enzyme immobilization, Glucoamylase, Enzyme reactor, 152
Cross-linking process
Chitin, Chitinase, Sorbent, Affinity chromatography, Isolation, 82
Cutinase
Kinetics, Stability, Amphipaths, 647
Cyclodextrin
Cyclodextrin glucanotransferase, Bacilli, Immobilized cells, Immobilized enzyme, Structure, 678
Cyclodextrin glucanotransferase
Bacilli, Immobilized cells, Immobilized enzyme, Structure, Cyclodextrin, 678
Transglycosylation, Saccharides, Glucosides, Heterogenous enzyme reaction system, Extrusion starch as glucosyl donor, 217
Cyclomaltodextrin glucanotransferase
Bacillus firmus, Factorial design, Media optimization, 288
Cysteine proteinase
Micrococcus, Accelerated ripening, Manchego cheese, 391
Cytochrome
Biocatalysis, Chemical modification, Enzyme, Oxidation, Polycyclic aromatic hydrocarbons, 8

D-AAO
Trigonopsis variabilis, Metabolic model, 329
D-(S)-Chlorolactic acid
Proteus vulgaris, Artificial electron mediator, Mediator regeneration, 170
Deacylation
Antibiotic, Biotransformation, Immobilized mycelium, A40926, Coimmobilization, 117
Decolorization
Biodegradation, Triphenylmethane dyes, Bacteria, Actinomycetes, Yeast, Fungi, 185
Degradation
Caffeine, Theophylline, Theobromine, Paraxanthine, Filamentous fungi, 355
Denaturation
β-Galactosidase, Invertase, High pressure, Stabilization, Additives, 532
Dephosphorylation
Phytic acid, Phytase, *myo*-Inositol, 415
Deproteinization
Shrimp shell, Chitin, Protease, *Pseudomonas aeruginosa*, *Pseudomonas maltophila*, 629
Deproteinized whey
Lactic acid, Mixed cultures, Fedbatch culture, 199
Deuterium isotope effect
Microbial chiral inversion, 2-Phenylpropionic acid, 2- Arylpropionic acid, Ibuprofen, Metabolism, 281
Dextran
Enzyme, Screening, Microtiter plate, Constitutive mutant, *Leuconostoc mesenteroides*, Glucansucrase, Dextransucrase, Alternansucrase, Alternan, 527
Dextransucrase
Enzyme, Screening, Microtiter plate, Constitutive mutant, *Leuconostoc mesenteroides*, Glucansucrase, Alternansucrase, Dextran, Alternan, 527
Diabetes
1,5-Anhydro-D-glucitol, Glucose dehydrogenase, Marine bacteria, 269
Diffusion
Agar, Alcoholic fermentation, Immobilized cells, Microporous membrane, 434
Disulfide exchange
Glucoamylase, Thermoinactivation, 466
Dockerin domain
Cellulosome, Cellulases, Cohesin domain, *Clostridium thermocellum*, Protein complexes, 588
L-DOPA
Tyrosinase, Scaleup, Kinetics, Inactivation, 261
Duroquinone
Kinetic tests, Menadione, Nitrate reductase, Quinone oxidoreductases, 165

EC 2.4.1.8
Trehalose, Maltose phosphorylase, Trehalose phosphorylase, EC 2.4.1.64, *Plesiomonas*, 71
EC 2.4.1.64
Trehalose, Maltose phosphorylase, Trehalose phosphorylase, EC 2.4.1.8, *Plesiomonas*, 71
Edible mushroom
Volvariella volvacea, β-Glucosidase, Cellulases, Bioconversion, 122
Electron microscopy
Subtilisin, Ultrasound irradiation, Organic solvent, Particle size, 147
Electronic circuitry
Automation, Compartmental electrophoresis, Polysaccharides, Proteins, 76
Emulsification
Mass transfer limitation, *Pseudomonas oleovorans*, Alkanes, Two-liquid phase culture, Interfacial area, Surfactant, 487
Emulsifiers
Lipases, *Candida antarctica* lipase, Amphiphiles, Food additives, Fructose, Sugar, 27
Enantioselective degradation
Epoxides, Biotransformation, Epoxide hydrolase, Glutathione transferase, Styrene oxide isomerase, *Xanthobacter* Py2, 19
Enantioselective dehalogenation
Optically active epihalohydrins, Enantioselective halogenation, *Arthrobacter erithii* H10a, Haloalcohol dehalogenase, 545
Enantioselective halogenation
Optically active epihalohydrins, Enantioselective dehalogenation, *Arthrobacter erithii* H10a, Haloalcohol dehalogenase, 545
Enantioselectivity
Enzymes, Solvent, Water activity, Resolution, *Candida antarctica*, Lipase, Ibuprofen, 212
Esterace, *Pseudomonas fluorescens*, Purification, 641
Lipase, *Pseudomonas cepacia*, *Candida rugosa*, Isoenzymes, Hydrolysis, Alcoholysis, Resolution, 86
Endoproteinase Pro-C
Flavobacterium meningosepticum, Peptide bond, Frozen aqueous system, 617
Endoxylanase
Bacillus sp., *Escherichia coli*, Xylobiose, 599
Bacillus sp., Wheat-straw xylans, Enzyme adsorption, 58
Enzymatic phenol removal
Horseradish peroxidase, Additive, 315
Enzyme adsorption
Endoxylanase, *Bacillus* sp., Wheat-straw xylans, 58
Enzyme immobilization
pHEMA/EGDMA microspheres, Covalent bonding, Glucoamylase, Enzyme reactor, 152
Enzyme modulation
Penicillin G acylase, Enzymes (in fine chemistry), Protection of amino compounds, Optically pure compound synthesis, 583
Enzyme purification
α-L-Arabinofuranosidase, β-D-Glucopyranosidase, Wine aromatization, 298
Arthrobacter erithii H10a, Haloalcohol dehalogenase, Halohydrin hydrogen halide lyase, 568
Enzyme reactor
PHEMA/EGDMA microspheres, Covalent bonding, Enzyme immobilization, glucoamylase, 152
Enzyme specificity
Plant rennet, Cheese ripening, Proteases, 305
Enzyme test
D-Xylose isomerase, Resorcinol, Microplate, Fructose determination, 721
Enzymes
Biocatalysis, Chemical modification, Cytochrome, Oxidation, Polycyclic aromatic hydrocarbons, 8
Screening, Microtiter plate, Constitutive mutant, *Leuconostoc mesenteroides*, Glucansucrase, Dextransucrase, Alternansucrase, Dextran, Alternan, 527
Solvent, Water activity, Resolution, Enantioselectivity, *Candida antarctica*, Lipase, Ibuprofen, 212
Enzymes (in fine chemistry)
Penicillin G acylase, Protection of amino compounds, Enzyme modulation, Optically pure compound synthesis, 583
Epoxides
Enantioselective degradation, Biotransformation, Epoxide hydrolase, Glutathione transferase, Styrene oxide isomerase, *Xanthobacter* Py2, 19
Escherichia coli
Endoxylanase, *Bacillus* sp., Xylobiose, 599
Streptavidin-lipase fusion gene, Fusion protein, Cloning, Transesterification, 246
Transketolase, Reactor design, Biotransformation, 64
Esterace
Enantioselectivity, *Pseudomonas fluorescens*, Purification, 641
Esterification
Lipase, *Rhizopus niveus*, *Mucor miehei*, Interesterification, Biphasic system, Organic solvent, 439
Lipase-catalyzed synthesis, (z)-3-Hexen-1-yl acetate, Hexane, Solvent-free medium, 240
Esterification yield
Surfactant-coated lipase, Lipolytic esterification, Acetic acid, Geraniol, 552

Ethanol
Zymomonas mobilis, Levan, Sorbitol, Immobilization, Fermentation, 179
Exponentially fedbatch culture
Bacillus subtilis, *aprE* gene, β-Galactosidase, 520
External film diffusion
Phenol biodegradation, Packed-bed column reactor, First-order biodegradation kinetics, Ca-alginate gel-immobilized *P. putida*, Mass transfer coefficient, 397
Extrusion starch as glucosyl donor
Transglycosylation, Cyclodextrin glucanotransferase, Saccharides, Glucosides, Heterogenous enzyme reaction system, 217

Factorial design
Cyclomaltodextrin glucanotransferase, *Bacillus firmus*, Media optimization, 288
Fedbatch culture
Lactic acid, Deproteinized whey, Mixed cultures, 199
Fermentation
Catabolic repression mutants, Chemostat cultures, Saccharomyces cerevisiae, 705
Propionibacteria, Propionic acid, Cell immobilization, Calcium alginate, 409
Propionic acid, Propionibacteria, Product inhibition, Kinetics, Cell immobilization, 13
Recombinant yeast, Starch, α-Amylase, Glucoamylase, 672
Zymomonas mobilis, Ethanol, Levan, Sorbitol, Immobilization, 179
Fermentation kinetics
Glutamic acid, Time-dependent models, 205
Ferulic acid
Hydroxycinnamate decarboxylase, Caffeic acid, *p*-Couramic acid, *Brettanomyces anomalus*, Flavor compounds, 232
Filamentous fungi
Caffeine, Theophylline, Theobromine, Paraxanthine, Degradation, 355
First-order biodegradation kinetics
Phenol biodegradation, Ca-alginate gel-immobilized *P. putida*, Packed-bed column reactor, External film diffusion, Mass transfer coefficient, 397
Flavobacterium meningosepticum
Endoproteinase Pro-C, Peptide bond, Frozen aqueous system, 617
Flavor compounds
Hydroxycinnamate decarboxylase Ferulic acid, Caffeic acid, *p*-Couramic acid, *Brettanomyces anomalus*, 232
Food additives
Lipases, *Candida antarctica* lipase, Amphiphiles, Emulsifiers, Fructose, Sugar, 27
Free fatty acids
Immobilized lipase, Acidolysis, Butter, Hollow-fiber reactor, Randomization, 511
Frozen aqueous system
Endoproteinase Pro-C, *Flavobacterium meningosepticum*, Peptide bond, 617
Fructose
Lipases, *Candida antarctica* lipase, Amphiphiles, Emulsifiers, Food additives, Sugar, 27
Fructose determination
D-Xylose isomerase, Resorcinol, Microplate, Enzyme test, 721

Fungi
Biodegradation, Bioremediation, *Fusarium solani*, Metal cyanides, Hexacyanoferrate, 223
Biodegradation, Decolorization, Triphenylmethane dyes, Bacteria, Actinomycetes, Yeast, 185
Biomass estimation, Solid-state fermentation, Growth, Conidiation, Methods, 480
Fusarium solani
Biodegradation, Bioremediation, Fungi, Metal cyanides, Hexacyanoferrate, 223
Fusion protein
Streptavidin-lipase fusion gene, *Escherichia coli*, Cloning, Transesterification, 246

Galactose
Lactose hydrolysis, β-Galactosidase, *Kluyveromyces fragilis*, Lactozym, Kinetic model, 558
α-Galactosidase
Aspergillus niger, β-Galactosidase, Purification, 383
Penicillium simplicissimum, Substrate specificity, 192
β-Galactosidase
Aspergillus niger, α-Galactosidase, Purification, 383
Bacillus subtilis, Exponentially fedbatch culture, *aprE* gene, 520
Invertase, High pressure, Denaturation, Stabilization, Additives, 532
Lactose hydrolysis, *Kluyveromyces fragilis*, Lactozym, Galactose, Kinetic model, 558
Geraniol
Surfactant-coated lipase, Lipolytic esterification, Acetic acid, Esterification yield, 552
β1-3 Glucanases
Autolysis, Impeller speed, *Penicillin chrysogenum*, Image analysis, Proteases, 446
Glucansucrase
Enzyme, Screening, Microtiter plate, Constitutive mutant, *Leuconostoc mesenteroides*, Dextransucrase, Alternansucrase, Dextran, Alternan, 527
Glucoamylase
Disulfide exchange, Thermoinactivation, 466
pHEMA/EGDMA microspheres, Covalent bonding, Enzyme immobilization, Enzyme reactor, 152
Recombinant yeast, Starch, Fermentation, α-Amylase, 672
Glucomacropeptide
Arthrobacter nicotianae, Neuraminidase, 142
β-D-Glucopyranosidase
α-L-Arabinofuranosidase, Enzyme purification, Wine aromatization, 298
Glucose dehydrogenase
1,5-Anhydro-D-glucitol, Diabetes, Marine bacteria, 269
β-Glucosidase
Volvariella volvacea, Cellulases, Edible mushroom, Bioconversion, 122
β-D-Glucosidase
Anthocyanase, *Aspergillus niger*, Purification, Color, Aroma, Cellulolysis, 374

Glucosides
Transglycosylation, Cyclodextrin glucanotransferase, Saccharides, Heterogenous enzyme reaction system, Extrusion starch as glucosyl donor, 217
Glutamic acid
Fermentation kinetics, Time-dependent models, 205
Glutathione transferase
Epoxides, Enantioselective degradation, Biotransformation, Epoxide hydrolase, Styrene oxide isomerase, *Xanthobacter* Py2, 19
Glyceride synthesis
Alcoholysis, Immobilization, Lipase, Hydrophobic support, Intermediately hydrophobic support, Supercritical carbon dioxide, 360
Growth
Biomass estimation, Solid-state fermentation, Fungi, Conidiation, Methods, 480
Growth limitation
Anthocyanin, Methylation, Strawberry, Peonidin-3-glucoside, 404
Growth rate
Tabersonine, Lochnericine, Serpentine, Ajmalicine, 606

2-Haloacid dehalogenase
Immobilization, Organic solvents, Substrate specificity, Stereoselectivity, 323
Haloalcohol dehalogenase
Arthrobacter erithii H10a, Halohydrin hydrogen halide lyase, Enzyme purification, 568
Optically active epihalohydrins, Enantioselective dehalogenation, Enantioselective halogenation, *Arthrobacter erithii* H10a, 545
Halogenated metabolites
Bjerkandera adusta, Bioconversion, Ligninolytic fungi, Membrane inlet mass spectrometry, 459
Halohydrin hydrogen halide lyase
Arthrobacter erithii H10a, Haloalcohol dehalogenase, Enzyme purification, 568
Halophilic bacteria
Saline wastewater, Rotating biodisc contractor, 427
Hemicellulose hydrosylate
Propionic acid, Xylanase hydrolysis, *Propionibacterium acidipropionici*, 292
Heterogenous enzyme reaction system
Transglycosylation, Cyclodextrin glucanotransferase, Saccharides, Glucosides, Extrusion starch as glucosyl donor, 217
Hexacyanoferrate
Biodegradation, Bioremediation, Fungi, *Fusarium solani*, Metal cyanides, 223
Hexane
Lipase-catalyzed synthesis, (z)-3-Hexen-1-yl acetate, Esterification, Solvent-free medium, 240
(z)-3-Hexen-1-yl acetate
Lipase-catalyzed synthesis, Esterification, Hexane, Solvent-free medium, 240
High pressure
β-Galactosidase, Invertase, Denaturation, Stabilization, Additives, 532
Hollow-fiber reactor
Immobilized lipase, Acidolysis, Butter, Free fatty acids, Randomization, 511

Horseradish peroxidase
Additive, Enzymatic phenol removal, 315
3-Methyl-2-benzothiazolinone hydrazone, Methoxylphenols, Oxidative coupling reaction, 656
Hydrocortisone production
11 β-Hydroxylation, Cell immobilization, *Absidia orchidis*, Cosolvent, 368
Hydrolysis
Candida cylindracea lipase, Zeolite, Immobilization, Palm oil, Kinetic model, 275
k-Casein, Chymosin, Immobilization, 342
Lipase, *Pseudomonas cepacia*, *Candida rugosa*, Isoenzymes, Enantioselectivity, Alcoholysis, Resolution, 86
Hydrophobic interaction chromatography
Bacillus amyloliquefaciens xylanase, Cellulase-free, Xylan, Stability, Composition, 42
Hydrophobic support
Alcoholysis, Glyceride synthesis, Immobilization, Lipase, Intermediately hydrophobic support, Supercritical carbon dioxide, 360
Hydroxycinnamate decarboxylase
Ferulic acid, Caffeic acid, *p*-Couramic acid, *Brettanomyces anomalus*, Flavor compounds, 232
11 β-Hydroxylation
Cell immobilization, *Absidia orchidis*, Hydrocortisone production, Cosolvent, 368

Ibuprofen
Enzymes, Solvent, Water activity, Resolution, Enantioselectivity, *Candida antarctica*, Lipase, 212
Microbial chiral inversion, 2-Phenylpropionic acid, 2- Arylpropionic acid, Deuterium isotope effect, Metabolism, 281
Ice-nucleation protein
Surface anchoring, Carboxymethylcellulase, *Pseudomonas syringae*, 348
Image analysis
Autolysis, Impeller speed, *Penicillin chrysogenum*, Proteases, β 1-3 Glucanases, 446
Immobilization
Alcoholysis, Glyceride synthesis, Lipase, Hydrophobic support, Intermediately hydrophobic support, Supercritical carbon dioxide, 360
Candida cylindracea lipase, Zeolite, Hydrolysis, Palm oil, Kinetic model, 275
k-Casein, Hydrolysis, Chymosin,, 342
2-Haloacid dehalogenase, Organic solvents, Substrate specificity, Stereoselectivity, 323
Toluene *cis*-diol, Barium alginate beads, Bioreactors, *Pseudomonas putida* UV4, 713
Zymomonas mobilis, Ethanol, Levan, Sorbitol, Fermentation, 179
Immobilized cells
Agar, Alcoholic fermentation, Diffusion, Microporous membrane, 434
Cyclodextrin glucanotransferase, Bacilli, Immobilized enzyme, Structure, Cyclodextrin, 678
Limonin, *Rhodococcus fascians*, Continuous reactor, 111
Immobilized enzyme
Cyclodextrin glucanotransferase, Bacilli, Immobilized cells, Structure, Cyclodextrin, 678
Shrimp and crab shell waste, *Pseudomonas aeruginosa*, Chitinase, Reversibly soluble polymers, 634
Immobilized lipase
Acidolysis, Butter, Hollow-fiber reactor, Free fatty acids, Randomization, 511
Immobilized mycelium
Antibiotic, Biotransformation, Deacylation, A40926, Coimmobilization, 117
Impedance sensor
Surface acoustic wave, Adenosine-5'-monophosphate, Acid phosphatase, Inhibition, 36
Impeller speed
Autolysis, *Penicillin chrysogenum*, Image analysis, Proteases, β 1-3 Glucanases, 446
Inactivation
L-DOPA, Tyrosinase, Scaleup, Kinetics, 261
Kinetics, Maleate, D-Malate, Permeabilized cells, *Pseudomonas pseudoalcaligens*, Product inhibition, 621
Inhibition
Surface acoustic wave, Impedance sensor, Adenosine-5'-monophosphate, Acid phosphatase, 36
Inhibitory peptides
Cheese, Lactic acid bacteria peptidases, ACE, *Pseudomonas fluorescens*, 687
myo-Inositol
Phytic acid, Phytase, Dephosphorylation, 415
Interesterification
Lipase, *Rhizopus niveus*, *Mucor miehei*, Esterification, Biphasic system, Organic solvent, 439
Interfacial area
Mass transfer limitation, *Pseudomonas oleovorans*, Alkanes, Two-liquid phase culture, Emulsification, Surfactant, 487
Intermediately hydrophobic support
Alcoholysis, Glyceride synthesis, Immobilization, Lipase, Hydrophobic support, Supercritical carbon dioxide, 360
Invertase
β-Galactosidase, High pressure, Denaturation, Stabilization, Additives, 532
Iron
Biosurfactant, Surfactin, *Bacillus subtilis*, 724
Isoenzymes
Lipase, *Pseudomonas cepacia*, *Candida rugosa*, Enantioselectivity, Hydrolysis, Alcoholysis, Resolution, 86
Isolation
Chitin, Chitinase, Cross-linking process, Sorbent, Affinity chromatography, 82
Isomerization
Lipase, Screening, Alcoholysis, Triacylglycerols, Wax ester, Stearyl oleate, 578

Kinetic model
Candida cylindracea lipase, Zeolite, Immobilization, Hydrolysis, Palm oil, 275
Lactose hydrolysis, β-Galactosidase, *Kluyveromyces fragilis*, Lactozym, Galactose, 558
Kinetic tests
Duroquinone, Menadione, Nitrate reductase, Quinone oxidoreductases, 165
Kinetics
Cutinase, Stability, Amphipaths, 647
L-DOPA, Tyrosinase, Scaleup, Inactivation, 261
Maleate, D-Malate, Permeabilized cells, *Pseudomonas pseudoalcaligens*, Product inhibition, Inactivation, 621
Propionic acid, Propionibacteria, Fermentation, Product inhibition, Cell immobilization, 13
Kluyveromyces fragilis
Lactose hydrolysis, β-Galactosidase, Lactozym, Galactose, Kinetic model, 558

Laccase
Polycyclic aromatic hydrocarbon, *Trametes versicolor*, PAH, 335
Lactic acid
Deproteinized whey, Mixed cultures, Fedbatch culture, 199
Lactic acid bacteria peptidases
Inhibitory peptides, Cheese, ACE, *Pseudomonas fluorescens*, 687
Lactose hydrolysis
β-Galactosidase, *Kluyveromyces fragilis*, Lactozym, Galactose, Kinetic model, 558
Lactozym
Lactose hydrolysis, β-Galactosidase, *Kluyveromyces fragilis*, Galactose, Kinetic model, 558
Leuconostoc mesenteroides
Enzyme, Screening, Microtiter plate, Constitutive mutant, Glucansucrase, Dextransucrase, Alternansucrase, Dextran, Alternan, 527
Levan
Zymomonas mobilis, Ethanol, Sorbitol, Immobilization, Fermentation, 179
Limonin
Rhodococcus fascians, Continuous reactor, Immobilized cells, 111
Lipase-catalyzed synthesis
(z)-3-Hexen-1-yl acetate, Esterification, Hexane, Solvent-free medium, 240
Lipases
Alcoholysis, Glyceride synthesis, Immobilization, Hydrophobic support, Intermediately hydrophobic support, Supercritical carbon dioxide, 360
Candida antarctica lipase, Amphiphiles, Emulsifiers, Food additives, Fructose, Sugar, 27
Enzymes, Solvent, Water activity, Resolution, Enantioselectivity, *Candida antarctica*, Ibuprofen, 212
Lysophospholipids, Solvent-free system, Salt hydrate pairs, Water activity control, 158
Novozym, *Candida antarctica* B, Activity, Supercritical fluids, 494
Pseudomonas cepacia, *Candida rugosa*, Isoenzymes, Enantioselectivity, Hydrolysis, Alcoholysis, Resolution, 86
Rhizopus niveus, *Mucor miehei*, Esterification, Interesterification, Biphasic system, Organic solvent, 439
Screening, Alcoholysis, Triacylglycerols, Wax ester, Stearyl oleate, Isomerization, 578
Lipolytic esterification
Surfactant-coated lipase, Acetic acid, Geraniol, Esterification yield, 552
Lochnericine
Growth rate, Tabersonine, Serpentine, Ajmalicine, 606

Lysophospholipids
Solvent-free system, Lipase, Salt hydrate pairs, Water activity control, 158

D-Malate
Kinetics, Maleate, Permeabilized cells, *Pseudomonas pseudoalcaligens*, Product inhibition, Inactivation, 621
Maleate
Kinetics, D-Malate, Permeabilized cells, *Pseudomonas pseudoalcaligens*, Product inhibition, Inactivation, 621
Maltogenic α-amylase
α-Amylase, Mechanisms of action, 612
Maltose phosphorylase
Trehalose, Trehalose phosphorylase, EC 2.4.1.8, EC 2.4.1.64, *Plesiomonas*, 71
Manchego cheese
Cysteine proteinase, *Micrococcus*, Accelerated ripening, 391
Marine bacteria
1,5-Anhydro-D-glucitol, Diabetes, Glucose dehydrogenase, 269
Mass transfer coefficient
Phenol biodegradation, Packed-bed column reactor, First-order biodegradation kinetics, Ca-alginate gel-immobilized *P. putida*, External film diffusion, 397
Mass transfer limitation
Pseudomonas oleovorans, Alkanes, Two-liquid phase culture, Emulsification, Interfacial area, Surfactant, 487
Mechanisms of action
α-Amylase, Maltogenic α-amylase, 612
Media optimization
Cyclomaltodextrin glucanotransferase, *Bacillus firmus*, Factorial design, 288
Mediator regeneration
Proteus vulgaris, D-(S)-Chlorolactic acid, Artificial electron mediator, 170
Membrane bioreactor
Bacillus subtilis, Stereoselective hydrolysis, Menthyl acetate, 575
Membrane inlet mass spectrometry
Bjerkandera adusta, Bioconversion, Halogenated metabolites, Ligninolytic fungi, 459
Menadione
Duroquinone, Kinetic tests, Nitrate reductase, Quinone oxidoreductases, 165
Menthyl acetate
Membrane bioreactor, *Bacillus subtilis*, Stereoselective hydrolysis, 575
Metabolic model
Trigonopsis variabilis, D-AAO, 329
Metabolism
Microbial chiral inversion, 2-Phenylpropionic acid, 2-Arylpropionic acid, Ibuprofen, Deuterium isotope effect, 281
Metal cyanides
Biodegradation, Bioremediation, Fungi, *Fusarium solani*, Hexacyanoferrate, 223
Methanogens
Methanotrophs, Tetrachloroethylene, Coimmobilization, Microbial consortium, 255
Methanotrophs
Methanogens, Tetrachloroethylene, Coimmobilization, Microbial consortium, 255
Methods
Biomass estimation, Solid-state fermentation, Fungi, Growth, Conidiation, 480
Methoxylphenols
Horseradish peroxidase, 3-Methyl-2-benzothiazolinone hydrazone, Oxidative coupling reaction, 656
3-Methyl-2-benzothiazolinone hydrazone
Horseradish peroxidase, Methoxylphenols, Oxidative coupling reaction, 656
Methylation
Anthocyanin, Strawberry, Growth limitation, Peonidin-3-glucoside, 404
Microbial chiral inversion
2-Phenylpropionic acid, 2-Arylpropionic acid, Ibuprofen, Deuterium isotope effect, Metabolism, 281
Microbial consortium
Methanotrophs, Methanogens, Tetrachloroethylene, Coimmobilization, 255
Micrococcus
Cysteine proteinase, Accelerated ripening, Manchego cheese, 391
Microplate
D-Xylose isomerase, Resorcinol, Enzyme test, Fructose determination, 721
Microporous membrane
Agar, Alcoholic fermentation, Diffusion, Immobilized cells, 434
Microtiter plate
Enzyme, Screening, Constitutive mutant, *Leuconostoc mesenteroides*, Glucansucrase, Dextransucrase, Alternansucrase, Dextran, Alternan, 527
Mixed cultures
Lactic acid, Deproteinized whey, Fedbatch culture, 199
Modelling
Solid-state fermentation, *Trichoderma* sp., Temperature dependence, 50
Mucor miehei
Rhizopus niveus, Lipase, Esterification, Interesterification, Biphasic system, Organic solvent, 439

Neuraminidase
Arthrobacter nicotianae, Glucomacropeptide, 142
Nitrate reductase
Duroquinone, Kinetic tests, Menadione, Quinone oxidoreductases, 165
Novozym
Candida antarctica B, Lipase, Activity, Supercritical fluids, 494

Optically active epihalohydrins
Enantioselective dehalogenation, Enantioselective halogenation, *Arthrobacter erithii* H10a, Haloalcohol dehalogenase, 545
Optically pure compound synthesis
Penicillin G acylase, Enzymes (in fine chemistry), Protection of amino compounds, Enzyme modulation, 583
Opticell
Recombinant protein production, Cell metabolism, Perfusion culture, PCGFX, 699
Orange peel substrates
Potato peel substrates, *Bacillus* enzymes, 130
Organic solvents
2-Haloacid dehalogenase, Immobilization, Substrate specificity, Stereoselectivity, 323
Rhizopus niveus, *Mucor miehei*, Lipase, Esterification, Interesterification, Biphasic system, 439
Subtilisin, Ultrasound irradiation, Electron microscopy, Particle size, 147
Oxidation
Biocatalysis, Chemical modification, Cytochrome, Enzyme, Polycyclic aromatic hydrocarbons, 8
Oxidative coupling reaction
Horseradish peroxidase, 3-Methyl-2-benzothiazolinone hydrazone, Methoxylphenols, 656
Oxygen uptake rate
Biomass quality, Biomass activity, ATP, Structured model, 500

Packed-bed column reactor
Phenol biodegradation, Ca-alginate gel-immobilized *P. putida*, First-order biodegradation kinetics, External film diffusion, Mass transfer coefficient, 397
PAH
Polycyclic aromatic hydrocarbon, Laccase, *Trametes versicolor*, 335
Palm oil
Candida cylindracea lipase, Zeolite, Immobilization, Hydrolysis, Kinetic model, 275
Paper properties
Bleach boosting effect, *Streptomyces thermoviolaceus*, Xylanses, Pulp treatment, 594
Paraxanthine
Caffeine, Theophylline, Theobromine, Degradation, Filamentous fungi, 355
Particle size
Subtilisin, Ultrasound irradiation, Organic solvent, Electron microscopy, 147
PCGFX
Recombinant protein production, Cell metabolism, Perfusion culture, Opticell, 699
Penicillin chrysogenum
Autolysis, Impeller speed, Image analysis, Proteases, β 1-3 Glucanases, 446
Penicillin G acylase
Enzymes (in fine chemistry), Protection of amino compounds, Enzyme modulation, Optically pure compound synthesis, 583
Penicillium simplicissimum
α-Galactosidase, Substrate specificity, 192
Peonidin-3-glucoside
Anthocyanin, Methylation, Strawberry, Growth limitation, 404
Peptide
Protease, Bitterness reduction, Protein hydrosylate, Condensation, 100
Peptide bond
Endoproteinase Pro-C, *Flavobacterium meningosepticum*, Frozen aqueous system, 617
Perfusion culture
Recombinant protein production, Cell metabolism, Opticell, PCGFX, 699
Permeabilized cells
Kinetics, Maleate, D-Malate, *Pseudomonas pseudoalcaligens*, Product inhibition, Inactivation, 621
pHEMA/EGDMA microspheres
Covalent bonding, Enzyme immobilization, Glucoamylase, Enzyme reactor, 152

Phenol biodegradation
Ca-alginate gel-immobilized *P. putida*, Packed-bed column reactor, First-order biodegradation kinetics, External film diffusion, Mass transfer coefficient, 397
2-Phenylpropionic acid
Microbial chiral inversion, 2-Arylpropionic acid, Ibuprofen, Deuterium isotope effect, Metabolism, 281
Phytase
Phytate, Thermostable enzyme, *Bacillus* sp., 2
Phytic acid, *myo*-Inositol, Dephosphorylation, 415
Phytate
Phytase, Thermostable enzyme, *Bacillus* sp., 2
Phytic acid
Phytase, *myo*-Inositol, Dephosphorylation, 415
Plant rennet
Cheese ripening, Proteases, Enzyme specificity, 305
Plesiomonas
Trehalose, Maltose phosphorylase, Trehalose phosphorylase, EC 2.4.1.8, EC 2.4.1.64, 71
Polycyclic aromatic hydrocarbons
Biocatalysis, Chemical modification, Cytochrome, Enzyme, Oxidation, 8
Laccase, *Trametes versicolor*, PAH, 335
Polyhydroxyalkanoates
Polymer characterization, Biological phosphorus removal, Activated sludge, Carbon source, 662
Polymer characterization
Polyhydroxyalkanoates, Biological phosphorus removal, Activated sludge, Carbon source, 662
Polysaccharides
Automation, Compartmental electrophoresis, Electronic circuitry, Proteins, 76
Potato peel substrates
Orange peel substrates, *Bacillus* enzymes, 130
Product inhibition
Kinetics, Maleate, D-Malate, Permeabilized cells, *Pseudomonas pseudoalcaligens*, Inactivation, 621
Propionic acid, Propionibacteria, Fermentation, Kinetics, Cell immobilization, 13
Propionibacteria
Propionic acid, Fermentation, Cell immobilization, Calcium alginate, 409
Propionic acid, Fermentation, Product inhibition, Kinetics, Cell immobilization, 13
Propionibacterium acidipropionici
Hemicellulose hydrosylate, Propionic acid, Xylanase hydrolysis, 292
Propionic acid
Hemicellulose hydrosylate, Xylanase hydrolysis, *Propionibacterium acidipropionici*, 292
Propionibacteria, Fermentation, Cell immobilization, Calcium alginate, 409
Propionibacteria, Fermentation, Product inhibition, Kinetics, Cell immobilization, 13
Proteases
Autolysis, Impeller speed, *Penicillin chrysogenum*, Image analysis, β 1-3 Glucanases, 446
Bitterness reduction, Protein hydrosylate, Peptide, Condensation, 100
Plant rennet, Cheese ripening, Enzyme specificity, 305
Protection of amino compounds
Penicillin G acylase, Enzymes (in fine chemistry), Enzyme modulation, Optically pure compound synthesis, 583
Protein complexes
Cellulosome, Cellulases, Dockerin domain, Cohesin domain, *Clostridium thermocellum*,, 588
Protein hydrosylate
Protease, Bitterness reduction, Peptide, Condensation, 100
Proteinase
Thermal inactivation, Unfolding, Refolding, Urea, *Pseudomonas fluorescens*, 695
Proteins
Automation, Compartmental electrophoresis, Electronic circuitry, Polysaccharides, 76
Proteus vulgaris
D-(S)-Chlorolactic acid, Artificial electron mediator, Mediator regeneration, 170
Pseudomonas aeruginosa
Shrimp and crab shell waste, Chitinase, Reversibly soluble polymers, Immobilized enzyme, 634
Shrimp shell, Chitin, Deproteinization, Protease, *Pseudomonas maltophila*, 629
Pseudomonas cepacia
Lipase, *Candida rugosa*, Isoenzymes, Enantioselectivity, Hydrolysis, Alcoholysis, Resolution, 86
Pseudomonas fluorescens
Enantioselectivity, Esterace, Purification, 641
Inhibitory peptides, Cheese, Lactic acid bacteria peptidases, ACE, 687
Proteinase, Thermal inactivation, Unfolding, Refolding, Urea, 695
Pseudomonas maltophila
Shrimp shell, Chitin, Deproteinization, Protease, *Pseudomonas aeruginosa*, 629
Pseudomonas oleovorans
Mass transfer limitation, Alkanes, Two-liquid phase culture, Emulsification, Interfacial area, Surfactant, 487
Pseudomonas pseudoalcaligens
Kinetics, Maleate, D-Malate, Permeabilized cells, Product inhibition, Inactivation, 621
Pseudomonas putida UV4
Toluene *cis*-diol, Barium alginate beads, Immobilization, Bioreactors, 713
Pseudomonas syringae
Surface anchoring, Ice-nucleation protein, Carboxymethylcellulase, 348
Pulp treatment
Bleach boosting effect, *Streptomyces thermoviolaceus*, Xylanses, Paper properties, 594
Purification
Aspergillus niger, α-Galactosidase, β-Galactosidase, 383
Enantioselectivity, Esterace, *Pseudomonas fluorescens*, 641
β-D-Glucosidase, Anthocyanase, *Aspergillus niger*, Color, Aroma, Cellulolysis, 374
Quinone oxidoreductases
Nitrate reductase, Duroquinone, Kinetic tests, Menadione, 165
Randomization
Immobilized lipase, Acidolysis, Butter, Hollow-fiber reactor, Free fatty acids,, 511
Reactor design
Transketolase, Biotransformation, *Escherichia coli*, 64
Recombinant protein production
Cell metabolism, Perfusion culture, Opticell, PCGFX, 699
Recombinant yeast
Starch, Fermentation, α-Amylase, Glucoamylase, 672
Refolding
Proteinase, Thermal inactivation, Unfolding, Urea, *Pseudomonas fluorescens*, 695
Resolution
Enzymes, Solvent, Water activity, Enantioselectivity, *Candida antarctica*, Lipase, Ibuprofen, 212
Lipase, *Pseudomonas cepacia*, *Candida rugosa*, Isoenzymes, Enantioselectivity, Hydrolysis, Alcoholysis, 86
Resorcinol
D-Xylose isomerase, Microplate, Enzyme test, Fructose determination, 721
Reversibly soluble polymers
Shrimp and crab shell waste, *Pseudomonas aeruginosa*, Chitinase, Immobilized enzyme, 634
Rhizopus niveus
Mucor miehei, Lipase, Esterification, Interesterification, Biphasic system, Organic solvent, 439
Rhodococcus fascians
Limonin, Continuous reactor, Immobilized cells, 111
Rotating biodisc contractor
Saline wastewater, Halophilic bacteria, 427
Saccharides
Transglycosylation, Cyclodextrin glucanotransferase, Glucosides, Heterogenous enzyme reaction system, Extrusion starch as glucosyl donor, 217
Saccharomyces cerevisiae
Catabolic repression mutants, Chemostat cultures, Fermentation, 705
Saline wastewater
Rotating biodisc contractor, Halophilic bacteria, 427
Salt hydrate pairs
Lysophospholipids, Solvent-free system, Lipase, Water activity control, 158
Scaleup
L-DOPA, Tyrosinase, Kinetics, Inactivation, 261
Screening
Lipase, Alcoholysis, Triacylglycerols, Wax ester, Stearyl oleate, Isomerization, 578
Serpentine
Growth rate, Tabersonine, Lochnericine, Ajmalicine, 606
Shrimp and crab shell waste
Pseudomonas aeruginosa, Chitinase, Reversibly soluble polymers, Immobilized enzyme, 634
Shrimp shell
Chitin, Deproteinization, Protease, *Pseudomonas aeruginosa*, *Pseudomonas maltophila*, 629

Solid-state fermentation
Biomass estimation, Fungi, Growth, Conidiation, Methods, 480
Trichoderma sp., Temperature dependence, Modelling, 50
Solvent
Enzymes, Water activity, Resolution, Enantioselectivity, *Candida antarctica*, Lipase, Ibuprofen, 212
Solvent-free medium
Lipase-catalyzed synthesis, (z)-3-Hexen-1-yl acetate, Esterification, Hexane, 240
Solvent-free system
Lysophospholipids, Lipase, Salt hydrate pairs, Water activity control, 158
Sorbent
Chitin, Chitinase, Cross-linking process, Affinity chromatography, Isolation, 82
Sorbitol
Zymomonas mobilis, Ethanol, Levan, Immobilization, Fermentation, 179
Stabilization
Bacillus amyloliquefaciens xylanase, Cellulase-free, Xylan, Hydrophobic interaction chromatography, Composition, 42
Cutinase, Kinetics, Amphipaths, 647
β-Galactosidase, Invertase, High pressure, Denaturation, Additives, 532
Starch
Recombinant yeast, Fermentation, α-Amylase, Glucoamylase, 672
Stearyl oleate
Lipase, Screening, Alcoholysis, Triacylglycerols, Wax ester, Isomerization, 578
Stereoselective hydrolysis
Membrane bioreactor, *Bacillus subtilis*, Menthyl acetate, 575
Stereoselectivity
Substrate specificity, 2-Haloacid dehalogenase, Immobilization, Organic solvents, 323
Strawberry
Anthocyanin, Methylation, Growth limitation, Peonidin-3-glucoside, 404
Streptavidin-lipase fusion gene
Fusion protein, *Escherichia coli*, Cloning, Transesterification, 246
Streptomyces thermoviolaceus
Bleach boosting effect, Xylanses, Paper properties, Pulp treatment, 594
Structure
Cyclodextrin glucanotransferase, Bacilli, Immobilized cells, Immobilized enzyme, Cyclodextrin, 678
Structured model
Biomass quality, Biomass activity, ATP, Oxygen uptake rate, 500
Styrene oxide isomerase
Epoxides, Enantioselective degradation, Biotransformation, Epoxide hydrolase, Glutathione transferase, *Xanthobacter* Py2, 19
Substrate specificity
2-Haloacid dehalogenase, Immobilization, Organic solvents, Stereoselectivity, 323
Penicillium simplicissimum, α- Galactosidase, 192
Subtilisin
Ultrasound irradiation, Organic solvent, Electron microscopy, Particle size, 147
Sugar
Lipases, *Candida antarctica* lipase, Amphiphiles, Emulsifiers, Food additives, Fructose, 27
Supercritical carbon dioxide
Alcoholysis, Glyceride synthesis, Immobilization, Lipase, Hydrophobic support, Intermediately hydrophobic support, 360
Supercritical fluids
Novozym, *Candida antarctica* B, Lipase, Activity, 494
Surface acoustic wave
Impedance sensor, Adenosine-5′-monophosphate, Acid phosphatase, Inhibition, 36
Surface anchoring
Ice-nucleation protein, Carboxymethylcellulase, *Pseudomonas syringae*, 348
Surface interactions
Cell adhesion, Binding force, 94
Surfactant
Mass transfer limitation, *Pseudomonas oleovorans*, Alkanes, Two-liquid phase culture, Emulsification, Interfacial area, 487
Surfactant-coated lipase
Lipolytic esterification, Acetic acid, Geraniol, Esterification yield, 552
Surfactin
Biosurfactant, Iron, *Bacillus subtilis*, 724

Tabersonine
Growth rate, Lochnericine, Serpentine, Ajmalicine, 606
Temperature dependence
Solid-state fermentation, *Trichoderma* sp., Modelling, 50
Tetrachloroethylene
Methanotrophs, Methanogens, Coimmobilization, Microbial consortium, 255
Theobromine
Caffeine, Theophylline, Paraxanthine, Degradation, Filamentous fungi, 355
Theophylline
Caffeine, Theobromine, Paraxanthine, Degradation, Filamentous fungi, 355
Thermal inactivation
Glucoamylase, Disulfide exchange, 466
Proteinase, Unfolding, Refolding, Urea, *Pseudomonas fluorescens*, 695
Thermostable enzyme
Phytase, Phytate, *Bacillus* sp., 2
Time-dependent models
Fermentation kinetics, Glutamic acid, 205
Toluene *cis*-diol
Barium alginate beads, Immobilization, Bioreactors, *Pseudomonas putida* UV4, 713
Trametes versicolor
Polycyclic aromatic hydrocarbon, Laccase, PAH, 335
Transesterification
Streptavidin-lipase fusion gene, Fusion protein, *Escherichia coli*, Cloning, 246
Transglycosylation
Cyclodextrin glucanotransferase, Saccharides, Glucosides, Heterogenous enzyme reaction system, Extrusion starch as glucosyl donor, 217
Transketolase
Reactor design, Biotransformation, *Escherichia coli*, 64
Trehalose
Maltose phosphorylase, Trehalose phosphorylase, EC 2.4.1.8, EC 2.4.1.64, *Plesiomonas*, 71
Trehalose phosphorylase
Trehalose, Maltose phosphorylase, EC 2.4.1.8, EC 2.4.1.64, *Plesiomonas*, 71
Triacylglycerols
Lipase, Screening, Alcoholysis, Wax ester, Stearyl oleate, Isomerization, 578
Trichoderma sp.
Solid-state fermentation, Temperature dependence, Modelling, 50
Trigonopsis variabilis
Metabolic model, D-AAO, 329
Triphenylmethane dyes
Biodegradation, Decolorization, Bacteria, Actinomycetes, Yeast, Fungi, 185
Two-liquid phase culture
Mass transfer limitation, *Pseudomonas oleovorans*, Alkanes, Emulsification, Interfacial area, Surfactant, 487
Two-phase system
Biotransformation, Chiral epoxide, 471
Tyrosinase
L-DOPA, Scaleup, Kinetics, Inactivation, 261

Ultrasound irradiation
Subtilisin, Organic solvent, Electron microscopy, Particle size, 147
Unfolding
Proteinase, Thermal inactivation, Refolding, Urea, *Pseudomonas fluorescens*, 695
Urea
Proteinase, Thermal inactivation, Unfolding, Refolding, *Pseudomonas fluorescens*, 695

Volvariella volvacea
β-Glucosidase, Cellulases, Edible mushroom, Bioconversion, 122

Water activity
Enzymes, Solvent, Resolution, Enantioselectivity, *Candida antarctica*, Lipase, Ibuprofen, 212
Water activity control
Lysophospholipids, Solvent-free system, Lipase, Salt hydrate pairs, 158
Wax ester
Lipase, Screening, Alcoholysis, Triacylglycerols, Stearyl oleate, Isomerization, 578
Wheat-straw xylans
Endoxylanase, *Bacillus* sp., Enzyme adsorption, 58
Wine aromatization
α-L-Arabinofuranosidase, β-D-Glucopyranosidase, Enzyme purification, 298

Xanthobacter Py2
Epoxides, Enantioselective degradation, Biotransformation, Epoxide hydrolase, Glutathione transferase, Styrene oxide isomerase, 19
Xylan
Bacillus amyloliquefaciens xylanase, Cellulase-free, Hydrophobic interaction chromatography, Stability, Composition, 42
Xylanase hydrolysis
Hemicellulose hydrosylate, Propionic acid, *Propionibacterium acidipropionici*, 292

Xylanses
Bleach boosting effect, *Streptomyces thermoviolaceus*, Paper properties, Pulp treatment, 594

Xylobiose
Endoxylanase, *Bacillus* sp., *Escherichia coli*, 599

D-Xylose isomerase
Resorcinol, Microplate, Enzyme test, Fructose determination, 721

Yeast
Biodegradation, Decolorization, Triphenylmethane dyes, Bacteria, Actinomycetes, Fungi, 185

Zeolite
Candida cylindracea lipase, Immobilization, Hydrolysis, Palm oil, Kinetic model, 275

Zymomonas mobilis
Ethanol, Levan, Sorbitol, Immobilization, Fermentation, 179